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AN
ACCOUNT
OF THE
TESTICLES,
THEIR COMMON COVERINGS
AND COATS;
AND THE
DISEASES TO WHICH THEY
ARE LIABLE.
WITH THE
METHOD OF TREATING THEM.

THE SECOND EDITION, WITH ADDITIONS.

By JOSEPH WARNER, F.R.S.
And Senior Surgeon to Guy's Hospital.

L O N D O N,

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E R R A T U M.

Page 80, line 4, *for* Tinct. Thel. *read* Tinct. Theb.

Just Published, Price *Two Shillings and Sixpence*,

A NEW EDITION OF A DESCRIPTION of the HUMAN EYE, and its ADJACENT PARTS;

TOGETHER WITH THEIR
PRINCIPAL DISEASES, and METHODS
proposed for Relieving them.

BY JOSEPH WARNER, F. R. S.
And SENIOR SURGEON to Guy's Hospital,

OF THE SCROTUM.

THE Scrotum is the external, or common covering of both testicles, as well as the external and common covering of the coats, or tunics of the testicles.

The Scrotum is composed of the Cuticula; the Cutis; the Membrana Cellularis; and the Dartos muscle.

The situation of the cuticle is on the external surface of the Scrotum; the Cutis lies under the cuticle. Betwixt the cuticle and Cutis is spread the Rete Mucosum. Adjoining the internal surface of the Cutis is placed a thin covering of a loose and hollow texture, void of fat. This covering to anatomists is known by the name of the cellular membrane of the Scrotum.

Next to, and under the external portion of the cellular membrane of the Scrotum, is placed a thin muscular, or fleshy body, called by the

B

Greeks

Greeks *δαρτος*: a name which it derives from its raw, or excoriated appearance, and not from its use of contracting the Scrotum.

Immediately under the expansion of the *Dartos*, a second cellular membrane is discoverable.

From this account, therefore, it appears that the *Dartos*, or thin muscular covering which is employed in forming a part of the Scrotum, is placed betwixt two cellular membranes; and from dissection it is demonstrable, that the internal cellular membrane is the most considerable of the two.

The *Membrana Cellularis Externa Scroti* admits of a passage to the fleshy fibres of the *Dartos* muscle; which fibres are attached to, or connected with, the internal surface of the *Cutis*; the *Dartos* likewise admits of a passage to the filaments of the internal cellular membrane; so that the two cellular membranes are observed to communicate.

Upon the external surface of the Scrotum is a prominent line, or ridge, termed *Raphe*.

The direction, or course of this prominence is perpendicular or longitudinal; and it is continued from the Anus to the extremity of the Penis on its inferior part.

The Raphe divides the external surface of the Scrotum, pretty nearly into two equal portions.

The Scrotum forms two distinct bags; one for each testicle, and its immediate tunics, or coats. These bags are formed by a duplicature of the Dartos muscle; and they are situated on each side of the Raphe of the Scrotum.

The bags being thus formed, are laterally connected to each other, by the intervention of a cellular membrane. This union, or connection of the sides of the Dartos constitutes that partition, which by anatomists is denominated Septum Scroti.

The Septum Scroti, on its inferior part, is connected to the internal surface of the Cutis immediately under the Raphe; on its superior part this Septum is connected to the inferior and external surface of the Urethra; after having been expanded upwards betwixt the Tunica Vaginalis of each testicle.

Upon a removal of the several parts which are concerned in forming the Scrotum; the tunics, or proper coats of the testicles, next present themselves to view.

OF THE TUNICS, OR COATS OF THE TESTICLES.

In number these Tunics are three; to wit, Cremaster, five Suspensorius Testis; Tunica Vaginalis Testis; & Tunica Albuginea. Cremaster, and Tunica Vaginalis are common to the spermatic chord, and to the testicle; Tunica Albuginea is proper to the testicle; this tunic immediately invests, and adjoins the Testis; and its appendage termed Epididymis.

Cremaster, five Suspensorius Testis, so termed from its office of assisting in the suspension, or elevation of the testicle, is a partial coat only of this member. It is composed of a thin series of muscular fibres, which surround the spermatic chord; and descend to the Tunica Vaginalis Testis; upon the upper and external parts of which, this muscular expansion terminates, and becomes lost.

Tunica Vaginalis Testis, so called from its office, is a thin membranous bag, or sheath; in its natural state answering nearly in size and shape to the Testis and Epididymis. It is a continuation

tinuation of the Tunica Vaginalis of the spermatic chord.

The Tunica Vaginalis of the spermatic chord is constructed of two distinct Laminæ of a membranous texture ; these Laminæ are situated upon one another ; the upper, or external Lamina of the two, is extended downwards ; and as it advances towards the testicles, and Epididymis, it becomes dilated and expanded, forming a bag, or sheath, for the reception of the Tunica Albuginea, the testicle itself, and the Epididymis.

The testicle and Epididymis, with their immediate coats, are loosely suspended in the Tunica Vaginalis, except on the posterior part ; where the Epididymis is connected to the internal surface of the Tunica Vaginalis.

The internal Lamina of the Tunica Vaginalis of the spermatic chord is attached to the spermatic rope, a little above the testicle, by the interposition of a thin and fine membrane, with which this Lamina is lined ; and by this means a transverse septum, or partition, betwixt the parts above, and those below, is formed.

The Tunica Vaginalis is a continuation, or process of the Peritonæum.

The Tunica Vaginalis of one testicle has no connexion with that of the other ; all such connexion being prevented by the Septum Scroti. The external surface of this tunic is rough and unpolished ; the internal surface of it is smooth, polished, and lubricated, by means of a very small quantity of extravasated lymph ; in the same manner, and for the same purposes too, as the internal surface of the Pericardium ; the internal surface of the Pleura ; the internal surface of the Dura Mater ; the external surface of the Pia Mater, and the internal surface of the Peritonæum are.

To these several cavities this moisture is furnished by the extremities of the exhaling, lymphatic, or secretory vessels, of their respective investing membranes ; and this fluid, in a proportional quantity, is occasionally returned into the course of the circulation, by such respective inhaling, or absorbent vessels, as correspond with the exhaling ones ; and which by nature are destined for this purpose.

Too great a relaxation, a sudden rupture, or a stimulus, arising from inflammation and pain to a great degree, affecting the lymphatic, or exhaling vessels, will occasion a dropfy of these parts ; and probably this may be the case too, if the absorbent,

forbent, or returning vessels, should by any means be rendered incapable of performing their usual and natural functions; the slowness, or quickness, in the progress of these maladies, probably depends much upon the greater, or less, degree of infirmity of these particular parts; as well as upon the general relaxed habit of body that preceded the disease or that accompanies it.

In some, these diseases admit only of a palliative, or temporary relief; whilst in others, they are found to admit of a radical, or effectual cure.

This species of disease, when it attacks the cavity of the Abdomen, is well enough known by the term *Ascites*; when it attacks one, or both cavities of the Thorax, it is termed *Hydrops Pectoris*, or *Hydrops Thoracis*; when it attacks the cavity of the *Tunica Vaginalis*, it is termed *Hydrocele*, or *Hernia Aquosa*; when it attacks the cavity and contents of the *Cranium*, it is termed *Hydrocephalus*; and when it attacks the *Membrana Cellularis* (which loose membrane is by anatomists sufficiently known to exist in almost every part of the body,) it is then, from its situation and extent, termed *Anasarca*; or from the pallid colour which this disease gives to the body, limbs, and face, it is termed *Leucophlegmatia*.

Tunica Albuginea, so named from its complexion, is a compact, firm, white, strong, and smoothly polished membrane, having a tendinous appearance. It very close adheres to, embraces, and immediately contains the body of the Testis, and Epididymis: it likewise loosely connects the middle part of the Epididymis with the body of the testicle, by means of a thin and fine membrane formed by a duplicature of the Tunica Albuginea, making a kind of ligament for this purpose. Besides the uses already assigned to the Tunica Albuginea, it serves to confine the growth of the Testis and Epididymis within certain limits; and, by closely embracing these parts, it gives them a due degree of firmness, and enables them to perform their proper functions.

N. B. If by accident, or in consequence of an incautious and injudicious operation, the Tunica Albuginea becomes wounded through, the natural bandage of the vascular and soft substance of the body of the testicle being in part by this means destroyed, the contents gradually sprout forth; they form a soft irregular tumor; and the lips of the wounded Tunic receding from each other are thereby rendered incapable of being healed. Two such instances I have lately had an opportunity of seeing, and attending to; in both cases it was found

found expedient to remove the testicles; both which operations were successfully performed.

OF THE TESTIS.

From its office, the testicle is defined a glandular body; from its composition, it is denominated a spermatic and vascular body.

Each testicle is made up of the spermatic artery, the spermatic vein, the nutrient vessel, the excretory vessels, or Tubuli Seminiferi. These Tubuli terminate in the Epididymis; the testicle likewise consists of a very great, but uncertain number of Lymphatic, or absorbent vessels; and of some branches of nerves belonging to, or derived from the Pelvis of the Abdomen, and the loins.

In the body of the testicle is discoverable a firm, whitish, compact substance, termed by anatomists the Nucleus, or axis of the testicle.

This Nucleus, or axis, consists of the Tubuli Seminiferi of the testicle, and those intermediate membranes, by means of which these Tubuli are connected.

The Tubuli Seminiferi, or excretory ducts, of the testicle terminate in the Epididymis, the Epididymis

didymis terminates in the Vas Deferens ; and the Vas deferens obliquely terminates in its respective Vesicula Seminalis, discharging its stream of Semen into the cells, of which this receptacle is composed.

The Epididymes are two vascular bodies, as the testicles are ; but the vessels of the Epididymes are observed to be more conspicuous than those of the testicle : The Epididymes, in their shape, and form, are oblong ; approaching to that of a cylinder : they are situated upon the superior parts of the testicles.

To enable us to form an adequate idea of this name, which is so universally bestowed on the appendix of each testicle ; it must be remembered, that by the *Greeks* the testicles were termed *Διδυμοί* ; and from situation, these appendages were denominated *Επιδιδυμεις*.

The Epididymis then is a part of the testicle, taking its origin within the body, or substance of the testicle, by many distinct Tubuli, or excretory ducts ; which Tubuli terminate in the Epididymis, and at length form an excretory duct called Vas Deferens.

One extremity of the Epididymis is inseparably connected to the Testis, of which it is a part ; the other extremity of the Epididymis is as firmly
con-

connected to the Vas Deferens: the body of the Epididymis is loosely adherent to the body of the Testis: in short, the body of the Testis, the Nucleus, or axis of the Testis, the Tubuli of the Testis, the Epididymis, and the Vas Deferens, are continuations or parts of each other; though they seem to be of different textures; and by anatomists have their different names and respective offices assigned to them.

The use of the Testis, is to secrete the seed from a stream of pure blood that is conveyed to it for that purpose, by means of the spermatic artery; which artery is discovered generally to take its origin from the Aorta Descendens Inferior, a little below the Emulgent, and betwixt the two Mesenteric arteries; whilst the reflux blood is conveyed back, or returned from the testicle, into the course of the circulation, by means of the corresponding spermatic vein; though in a different state from what it was when carried to the Testis: the right Spermatic vein generally discharging its contents into the Vena Cava Descendens; whilst the left almost always discharges itself into the left emulgent vein; by means of which it escapes any inconvenience that might happen from passing over the Aorta.

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The Semen, when separated, is received or absorbed by the Tubuli Seminiferi of the testicle; and through these Tubuli the Semen is conveyed, in a thin and liquid state, to the Epididymis; from the Epididymis the Semen is forwarded by the Vas Deferens; through the extremity of which it is obliquely discharged into the cells of the Vesicula Seminalis, where it gradually acquires a viscid consistence.

The use of the Lymphatics is to absorb the thinner parts of the blood, called Lymph; and to return the Lymph, thus absorbed, into the mass of venal blood.

The use of the nerves is to bestow a due degree of sensibility and irritability to the Testis and the Tunica Albuginea.

The use of the nutrient vessel is to give nourishment to the Testis and Epididymis.

The anatomy of the Scrotum, of the Tunics of the Testicle, of the Testicle itself, of the Epididymis, and of the Vas Deferens, being, I imagine, minutely enough described for the purposes of the Surgeon, I proceed to speak of the nature and treatment of such important diseases, as these parts to me have appeared to be most liable to; and which require the aid of surgery, physic, a proper regimen in diet, and temporary
rest

rest from exercise and labour, for their relief and cure.

OF THE DISEASES OF THE SCROTUM, &c.

The principal diseases to which the Scrotum, the Tunics of the Testicles, the Testicles themselves, and the Epididymes, are subjected, are, an enlargement, inflammation, suppuration or abscess, dropfy, mortification, fistulous ulcers, callosities, indurations, and that worse degree of induration termed schirrhus, which is sometimes disposed to become cancerous.

As these diseases are very differently circumstanced, different modes of treatment are found proper, as well as necessary, for their relief and cure.

If the affection arises from an enlargement or a considerable inflammation of the Scrotum and its contents; and this inflammation does not take place at the crisis or termination of a dangerous fever, whether the fever has been of a longer or shorter duration, nor the inflammation appears to be of that dusky or livid complexion which indicates, or at least threatens, a tendency to gangrene;

grene; such method of treatment must be pursued as may most probably tend to its speedy removal by discussion; such as copious and occasionally repeated evacuations, by bleeding at the arm; by purges, clysters, or emetics; by adhering to an abstemious liquid diet; by medicines of the cooling kind, or such as may tend to promote a moderate and continued perspiration from the whole body; by a free use of acidulated and diluting liquors; and by anodynes, occasionally administered, for the relief of pain, and the obtaining of placidness and rest. This treatment, when farther assisted by local fomentations every day, once or twice made use of for the space of half an hour, or thereabouts, at each time of applying them; joined with embrocations of the soft, cooling, anodyne, and moderately repellent kind; together with cataplasms, composed of such ingredients as experience teaches us have the like tendency, when continually kept upon the painful and enlarged parts; such, for instance, as those made of equal parts of oil and vinegar, mixed with a sufficient quantity of oatmeal, or linseed meal; or cataplasms of strong-beer grounds and oatmeal, to which may very properly be added a small quantity of oil, hogs-lard, ointment of elder, or butter; or indeed any other cataplasm,

if

if more easily obtained, that shall have the like tendency to discession. By these methods an inflammatory tumor of the Scrotum, and of the coats of the Testicle, as well as of the Testicle itself, may almost always be sooner or later removed; at the same time remembering the necessity there generally is of keeping your patient in bed; or in keeping him still and quiet upon a couch, with his legs and thighs supported; and even at present, and in future, to suspend the parts in a bag-truss; and to continue this suspension for a longer or shorter time, as occasion shall be found to require: for in different habits of body, as well as in different degrees of this and other diseases, a greater or less space of time will be required for effecting our intentions, dependent upon a variety of circumstances, which seldom can be foreseen.

Inflammations and tumors of these parts, arising from venereal causes, are attended in many instances with very acute pain, and a symptomatic fever; because the inflammation and tumor originate in the Tunica Albuginea and Testicle itself; and, in general, such attacks are observed to be very sudden, and quick in their progress, accompanied by a considerable enlargement, tension, and induration of the Testis itself,

self, the Epididymis, and the Tunica Albuginea, which, upon examination, during this state, in some instances, appear as one uniform, smooth, shining, and distended body, with an inflamed or red skin; and the infectious and venereal discharge, which preceded the tumor, is found, either in a great measure or totally, to disappear.

Sometimes, but not always, the discharge from the Urethra returns in a much slighter or milder degree than it first appeared to be; and this, not till the inflammation or tumor are in part removed, or till they almost wholly disappear. In these affections of the Testicle and its coverings, arising from venereal or other causes, a degree of enlargement and induration of the body of the Testis and the Epididymis frequently remain; but more frequently of the Epididymis alone, even after the inflammation and pain have quite subsided: for the removal of which, are found necessary the applications of mercurial ointments, or mercurial ointments mixed with a proper quantity of camphor, used by rubbing the parts once or twice a day for some minutes before the fire, in the proportion of half a drachm, or one scruple, of the Unguentum Cœruleum Fortius at each time of using it; or, what may answer the purpose still better, the local applica-
tion

tion of an adhesive plaister, composed of soap, mercury, and warm gums, spread upon thin soft leather, or rag; which, to those whom secrecy and employment render it necessary, is, I think, the most eligible as well as the most efficacious method of the two for discussing the tumor. These methods, when properly pursued, I have seldom known to fail of success: however, should they not be found capable of effecting every wished-for end; emetics, occasionally repeated, will be found very conducive to this purpose.

If an inflammation and tumor of these or any other parts of the body should arise, at the termination of a long and dangerous fever, the tumor must be considered as critical; and those methods must be pursued, which, from experience, we find are most likely to promote the formation of matter, by increasing the swelling; such as the Cataplasma Maturans of the London Dispensatory; or a cataplasm of bread and milk, mixed with a small proportion of yellow Basilicon dissolved in it, and applied warm to the part affected. All cataplasms, that are proposed as encouragers of suppuration, should be applied as warm as can agreeably be admitted of: all cataplasms that are recommended as discutients, may, with propriety, be applied cold. The patient

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must

must now be supported by a generous diet; and those medicines of the cordial kind should be administered at proper intervals, which experience teaches are most likely to conduce to this end. Such as the Cortex Peruvianus in substance, extract, decoction, or infusion; the Pulvis Serpent. Virgin, and Pulvis Radicis Contrayervæ, in decoctions, either given alone, or joined with the Confect. Cardiaca; occasionally adding opiates to these medicines, provided great pain and restlessness, or a disposition to a Diarrhœa, should accompany the progress of the tumor: on the contrary, if costiveness of the body should happen, occasional clysters ought to be administered, or a small quantity of Pulvis Rhei, or of the Sal Rupiliensis, or of the Tartarus Solubilis, or of some other gentle purgative, must be added to each dose of the cordial medicine, and repeated till this inconvenience be removed.

When the Abscess arrives at a sufficient degree of maturity (but not before), which, in general, may be discovered by some or all of the following symptoms: to wit, the size and prominence of the swelling; the softness of the integuments; their shining red complexion; the peeling off of the cuticle from the cutis; the mitigation of pain in the part itself; an œdematous appearance
of

of the integuments, upon being pressed; but above all, the fluctuation of matter under the fingers, which, by the skilful surgeon, is most to be depended upon: then let the tumor be boldly and properly opened, by incision, on its most fluctuating and depending part. If the tumor be large, and the integuments be thin and much discoloured, remove an oval piece of them, by making your first wound in a longitudinal direction, and approaching to a semicircular form, so that your patient may not undergo the pain of more than two incisions; as your second wound, by being made in a direction opposite to and corresponding with the first in size and shape, will so effectually answer your design, as probably to render any future operation on this occasion unnecessary; and will, at the same time, enable you to apply your present and future dressings to the bottom of the wound, in an easy and effectual manner. As soon as the contents of the tumor are evacuated, fill your wound loosely with short pieces of lint, of the most soft and downy kind; and over the whole continue your pultice, or apply a pledgit of tow or lint, spread with some emollient ointment; the whole of which must be retained on the parts with a proper bandage. Your future dressings

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should

should be composed of the yellow Basilicon, Lini-
mentum Arcaei, or any other efficacious digestive,
spread upon layers of lint; which pledgits may
be rendered more soft, easy, and effectual, by
dipping them in fresh fallad or linseed oil, made
moderately warm. At the end of the two first
days, the dressings ought to be renewed twice in
the twenty-four hours; and this practice may be
continued, on account of the quantity or acrimony of the discharge, so long as may be thought
necessary; observing to make use of an emollient
fomentation, for the space of a quarter of an
hour, or a longer time, previous to each dressing.
If the discharge from the wound be thin, sanious, and corrosive, sprinkle some brandy, Hungary water, lavender water, or camphorated spirits of wine, upon each fomentation-cloth; and if, after the operation, any considerable hardness of the integuments should still remain, continue to apply the suppurating pultice, at each time of dressing, over the pledgits of digestive, till such hardness be removed.

The use of red port wine, of the Cortex Peruvianus alone, or the Cortex joined with the Pulvis Radic. Serpent. Virginianæ, or a strong decoction of the powder of Serpentary and Contrayerva, with or without the Confect. Cardiaca, as well as the
Spiritus

Spiritus Vitrioli Tenuis, mixed in proper quantities in some diluting liquor, and administered as common drink, and repeated at proper intervals, will generally be found singularly serviceable in supporting the patient's strength, and will often be found desirable to alter the quality and quantity of the discharge.

If the tumor should have been neglected, and the Abscess of the Scrotum has been not only left to break of itself, but the wound is so circumstanced as to communicate with the Urethra, the external fores are generally small and sinuous, the lips of the wound at length grow callous, the discharge is thin, great, and almost continual, and the urine will in a greater or less degree escape through the external wound at the times of making water; whilst it will, in part, likewise insinuate itself into the cellular membranes of the Scrotum and its neighbouring parts, and be therein retarded and confined; from whence arise many and great inconveniencies, that cannot be removed till the orifice made through the Urethra is healed: which often may be traced to be the original source of the whole mischief; whilst at other times it shall happen in consequence of an Abscess taking its rise within the cellular membrane, near to the Urethra, or in

the Corpus Cavernosum Urethræ itself. In the first instance, an obstruction in the passage may almost always be discovered by the introduction of a bougie into the Urethra ; in the second instance, I have observed that sometimes, nay very often, little or no such obstruction exists : which circumstance renders the future management of the ulcers more easy than when obstructions in the Urethra, generally, though not always, arising from venereal causes, give rise to the complaint ; the judicious introduction and use of bougies, made of a proper composition, size, and stiffness, joined with mercurial frictions, applied near to, or immediately upon the diseased parts in proper quantities, at proper intervals, and continued for a due length of time, joined with soft oily purges, occasionally administered, and soft diluting drinks, will often render every severe operation unnecessary ; though the circumstances attendant upon the complaint be of a bad and complicated kind.

In regard to fistulous sores, callosities, enlargements, and distentions of these parts ; it is worth remembering, that although the disease should appear to be not confined to the Scrotum, but that it extends to the Perinæum and Nates, and there be many external fistulous openings through
the

the integuments of these parts ; yet there shall, in some instances, be discoverable only one opening into the Urethra ; to remove which should be the primary attempt of the surgeon, as the cure of the whole very much, if not altogether, depends upon this very circumstance ; and of this be assured ; that the permanency of the cure of every wound, however circumstanced, depends upon the soundness and firmness of its foundation or bottom.

If the Suppuration or Abscess be formed in the body of the Testis, a simple incision made with the point of a lancet, on the most depending and soft part of the tumor, will generally be sufficient ; or the Abscess may be permitted to break of itself ; observing, at all times, to dress the wound in the most superficial manner, and to continue an emollient and suppurating cataplasm, as long as may be thought adviseable, for the removal of the swelling and remaining hardness of the part affected.

Abcesses of the body of the Testis very seldom arise from venereal complaints, when they are properly treated ; nor is this often the consequence, even when a tumor of the Testis happens from a fever accompanied by venereal infection ; but as suppurations of the Testis are

sometimes the consequence of this, and other causes, it behoves us to be circumspect, and to act with caution and propriety. On the contrary, if the disease be of the gangrenous species, we must have immediate recourse to local applications of the antiseptic kind; such as aromatic and spirituous fomentations, repeated twice a day; the Cataplasme à Cymino, sufficiently large to cover the whole diseased part; scarifications or punctures made deep enough to evacuate the confined air, as well as the thin, acrimonious, and extravasated fluid, that is sometimes known to be pent up in the cellular membranes; these scarifications must be dressed with warm ointments and oils of a sufficiently deterfive and stimulating kind. The patient must be allowed wine in his common drinks; the Cortex and Serpentry, mixed in a cordial julep, must be administered in proper doses, every third, fourth, fifth, or sixth hour, as occasion may require; and if the patient be faint and languid, one or more blisters ought immediately to be applied, and to be occasionally repeated; observing at the same time, to keep the bowels in a proper state; and under these circumstances to be particularly careful in preventing too great a tendency to a laxness of bowels, or in restraining a

Diarr-

Diarrhoea, when that symptom shall be observed to come on; as a flux in weak and reduced habits of body is likely to be immediately productive of worse effects than are likely to happen from costiveness.

OF THE HYDROPS SCROTALIS,
OR ANASARCA OF THE SCROTUM.

WHEN a tumor is formed by a collection of extravasated lymph, deposited, and become stagnant in the numerous cavities of the cellular membranes of the Scrotum ; or a collection of extravasated lymph lies closely confined in the cavity of the Tunica Vaginalis Testis ; such a diseased state and watery enlargement of these parts may, with propriety, be treated of under the Greek denomination *ὑδροκήλη* ; or under either of the Latin terms *Hydrops Scrotalis*, or *Hernia Aquosa* ; however, it must be remembered, that from custom the term *Hydrocele* is almost universally confined to the last kind of swelling, though certainly without any great propriety, as this Greek word, from its etymology, is sufficiently known to express a watery tumor ; whether it be of the Scrotum ; of the Tunica Vaginalis Testis, or of any other part of the body whatsoever.

Celsus, in his chapter entitled *de Testiculorum Natura & Morbis*, Liber Septimus, Cap. xviii. observes that there are two species of this disease :
and

and on this occasion Celfus expreffes himfelf in the following words ; *Integris vero Membranis interdum eam partem humor diffundit : atque ejus quoque duæ species funt. Nam vel inter Tunicas is increfcit, vel in Membranis, &c. Græci communi nomine, quicquid eft, ὑδροκήλην* appellant. To the fagacity of Celfus therefore for this concise, and plain divifion, or diftinction of the Hydrocele into two kinds only, we are indebted ; and not to the obfervation of Mr. S. Sharpe, or any modern author in furgery.

The dropfy of the *Membrana Cellularis*, otherwife termed *Hydrops Scrotalis*, is really known to the experienced furgeon, and by him eafily diftinguifhed from the Hydrocele of the *Tunica Vaginalis Testis*, by the following fymptoms and appearances.

When a confiderable quantity of extravafated lymph is deposite and confined in the cells of the *Tela Cellulofa*, or *Membrana Cellularis Scroti*, the Scrotum generally becomes uniformly enlarged. The tefticles cannot be felt, and the common integuments appear thickened, diffended, pale, fhining, and polifhed ; unlefs the fkin be inflamed ; then the part becomes red. The Penis often partakes of the like appearances ; and that member becomes confiderably elongated, and,

and enlarged by the disease. Upon pressure, the tumor feels soft, the integuments assume a down-like or œdematous appearance, and for some little time afterwards there remains a depression or cavity on the part that was pressed upon. In general, this affection of the Scrotum is far from being a local malady; the body, the limbs, and the face, partake of the disease: at the same time the whole constitution appears to be much impaired thereby; so that the great and permanent relief, which is to be afforded the patient, who labours under this affliction, must be expected from a proper regimen in diet, from gentle exercise, and from proper internal medicines, rather than from manual operation and topical applications.

But since, from experience, we know, that in this disease the integuments are often very much put upon the stretch, and that they are sometimes attended with great pain and considerable inconvenience in making water, occasioned by the Prepuce of the Penis obstructing the extremity of the Urethra, from the distension, from the spiral form, and from the elongation of its integuments; that under such circumstances, scarifications or punctures, made sufficiently deep to penetrate the fibres of the Dartos muscle of
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the Sctotum and the cellular membrane of the Penis itself, are thought adviseable: it then becomes the province of the surgeon; whose business, upon these occasions, is to use his best endeavours to promote a temporary discharge of lymph; and by these means to afford the patient that relief from pain, which proper topical remedies are sometimes found capable of effecting. To answer these purposes therefore, in the first instance, it may be proper to observe, that all astringent fomentations, irritating ointments, spirituous applications, and stimulating aromatic cataplasms, should be avoided: since such applications are not only disposed to encrease pain, but in some measure are disposed too suddenly to harden and contract the mouths of the divided lymphatics; and by these means to prevent a freedom, and continuance of that discharge of lymph, which the operations were intended to promote: such applications then must be desisted from, till the parts are observed to grow flaccid, and have in part, or almost wholly, subsided; or till the integuments have assumed a dusky or livid complexion: soon after which last symptoms, a mortification often succeeds; or the discharge from the wounds, when a mortification does not take place, becomes great in quantity, as well as putrid,

putrid, corrosive, and offensive in quality, by changing its original mild, soft, inoffensive, and gelatinous nature, to a thin acrimonious Sanies. This we observe to be sometimes the case, in those uncommon habits of body that are sufficiently strong to survive such severe attacks as I have described, and to terminate in this most desirable manner of the two.

On the contrary therefore, after making incisions or scarifications or punctures of a sufficient depth through the swollen integuments, let fomentations of the most emollient kind be applied to the wounds and their neighbouring parts. These fomentations may be composed of cow's milk, made sufficiently hot for the purpose; or they may be composed of equal parts of hot pearl-barley-water and milk; or of equal parts of common soft water and milk; or of a decoction of bran, oatmeal, marsh-mallow leaves, or poppy heads, prepared in water; let your dressings be pledgits of lint, dipped in warm sweet oil, or warm linseed oil; or such pledgits may, first of all, be thinly spread with Basilicon Flavum, Linimentum Arcæi, or any other such-like digestive ointment, before they are dipped in oil. Over the pledgits apply a soft cataplasm of bread and milk, made warm, and mixed with a sufficient quantity

quantity of Unguentum Florum Sambuci, or Oleum Olivarum, or Oleum Lini, or fresh hog's lard, to render the pultice moist, and to preserve it in that state; or, instead of this kind of cataplasm, apply that which may be composed of fresh linseed meal and warm water, as being, in its nature, the more moist of the two. Occasionally repeat these cataplasms, and continue them for as long a time as may be found necessary.

In these complaints it sometimes happens, that, upon a general suppuration of the parts coming on, the whole integuments are observed gradually to grow loose, and to slough away; in consequence of which, the Tunica Vaginalis Testis becomes quite bare and exposed. Some instances, indeed, I have seen, where the whole Tunica Vaginalis Testis itself, as well as the parts composing the Scrotum, have been destroyed, leaving the Tunica Albuginea quite bare and exposed, without bringing on any extraordinary pain, or danger of life from such exposure of this part.

OF THE HYDROCELE OF THE TUNICA VAGINALIS TESTIS.

The Hydrocele of the Tunica Vaginalis is an enlargement of the Scrotum, on that side of its Raphe where the distension takes place, supposing the attack to be in one Tunic only; but since it sometimes happens that the Tunica Vaginalis of each Testicle is at the same time diseased, and pretty nearly in the same degree too, under such circumstances the enlargement of the Scrotum becomes general and uniform, putting on the appearance of one tumor only; though, in fact, it be made up of two distinct tumors: the cavity of the Tunica Vaginalis of one Testis having no communication with the cavity of the Tunica Vaginalis of the other. In different people, and owing to different causes, these tumors are known to be very different in their shape and size.

The size of the tumor, in general, almost altogether depends upon the quantity of extravasated fluid that is deposited in the Tunica Vaginalis Testis, but not always; since it sometimes happens that the Scrotum and Tunica Vaginalis
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are at the same time much thickened ; whilst at other times, though no disease of the integuments exist, yet there shall be a præternatural enlargement of the body of the Testis and of the Epididymis ; when the disease is accompanied with a præternatural thickening of the Scrotum, that circumstance is easily discoverable ; and the contained fluid is often turbid, or discoloured ; but an enlargement of the Testis is not always so easy to be known, till the water in which it is immersed is let out. The greater the quantity of extravasated serum or lymph there is in the Tunica Vaginalis Testis, the more difficult it will be to ascertain the state the Testicle is in ; the smaller the quantity of serum, the more easy it will be to judge of this important fact ; which is a matter very easy to be conceived of. However, from the multiplicity of cases of this kind which I have attended to, I have observed, that when the Testicle is enlarged, and that enlargement proves to be of the cancerous kind, the extravasated fluid is seldom deposited in any great quantity in the Tunica Vaginalis ; and that, upon the confined fluid being evacuated, it has almost always appeared bloody. In such cases, it is perhaps needless to say that the radical cure

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of the Hydrocele ought never to be attempted; as such part of the tumor arising from extravasation is a slight symptom only of a more serious complaint, which does not admit of being cured, or even relieved, by an operation performed on its coats; but, on the contrary, the diseased Testis will probably be greatly aggravated, by having recourse to such severe and improper methods. When the enlargement of the Testis proceeds merely from relaxation, and neither is of the schirrous nor cancerous tribe, (instances of which are not uncommon,) the fluid will often, under such circumstances, be found in great abundance: and seldom of the bloody or turbid kind, as in the schirrous or cancerous Testis.

The mere evacuation of the lymph with the point of a lancet, previous to a determination upon the performance of any operation of a more serious, hazardous, and painful nature, upon these parts, may always be done with the utmost safety and propriety; even supposing the enlargement of the Testis to be of the worst kind: and, as a direction or guide to us, it will always be adviseable to puncture the part, when there is the least reason to doubt of the diseased state of the Testis itself, previous to a procedure
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to castration, or even to the radical operation for the Hydrocele of the Tunica Vaginalis Testis.

The Hydrocele of the Tunica Vaginalis is a disease, from which no male subject of any age or climate appears, by nature, to be secured: but in the southern or warm climates, I think, this disease seems to prevail more frequently than it does in the northern or colder regions; though it is certainly a disease very common to the natives and inhabitants of England.

From the West India Islands I have been consulted by a variety of patients, who have been afflicted with this species of tumor; which notwithstanding I have sometimes observed to be much lessened, and relieved, by a mere change of climate; yet that relief has only been temporary: the tumor almost always recurring, and increasing to its usual size, and in a short time too, after their return to a hot climate. This, indeed, may reasonably be expected to be the case, so long as those lymphatics, which are the seat of the disorder, shall continue in that præternaturally relaxed or diseased state which they have once acquired; and, for this obvious reason, will

sooner or later be made liable to a similar affection, from a similar cause.

In young children I have many times effectually removed this complaint, without manual operation : purges, repeated at proper intervals, and local applications of a gently stimulating and astringent kind, have, in many instances, succeeded to my wishes ; but, in adults, the like experiments have hitherto always proved unsuccessful.

The Hydrocele, when it proceeds from a mere weakness and relaxation of the lymphatics of the Tunica Vaginalis (and perhaps sometimes too of the Tunica Albuginea,) is a disease, I believe, that seldom suddenly arrives at so great a size as to prove inconvenient or painful ; on the contrary, the tumor is at first small, and it gradually increases : but when the extravasation is occasioned by a sudden rupture of the vessels of this Tunic, or from a severe and painful inflammation of that membrane and of the Testis itself, the tumor is sometimes observed very suddenly to come on ; though, it must be confessed, that, from the latter cause, this is not often the case. However, as I have very lately been advised with in the instance of a young gentleman, severely afflicted with a
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venereal Hernia Humoralis of one Testis; in the Tunica Vaginalis of which was evidently contained a considerable quantity of extravasated lymph, of a transparent kind; which I evacuated upon the spot, with a lancet, to the quantity of five or six ounces, and thereby procured a considerable relief; I am convinced that a painful and præternatural stimulus, affecting the Testicle and its Tunics, does sometimes, on a sudden, produce too great a secretion and stagnation of the lymph; and by this means the Hydrocele is capable of being, in a very short time, brought on to an inconvenient and painful degree.

The patient, in this state, was accompanied by his surgeon to London, at the distance of about sixteen or seventeen miles, for my assistance; who, upon the delivery of my opinion, assured me, that, on the day before he came to me, there was not the least appearance of such extravasation in the Tunica. The tumor now was large, and the patient was feverish. The Integuments, the Testicle, and the Epididymis, were considerably inflamed; and the two latter were very hard, and much enlarged; the Scrotum and the Tunica Vaginalis Testis, from their sudden distension, appeared much thinner

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than in their natural state, or than I ever in manhood observed it to be, when the tumor comes slowly on. In this instance, the Scrotum and Tunica Vaginalis were perfectly transparent, and considerably elevated on their anterior and inferior parts; and they resembled a bladder filled, and distended with clear water: the Testicle and Epididymis preserved their natural situation; that is, they were fixed behind to the Tunica Vaginalis, and by these means were kept at a considerable distance from the forepart of the distended Tunic: the patient was much relieved by the operation, and in a few hours afterwards he returned home.

Supposing this short history of the case to have been fairly represented by the surgeon, as I verily believe it was; we may, from this and other examples of the like kind, infer, that sudden inflammations of membranous parts, occasioning much irritation, are sometimes productive of more speedy effects of the like kind, in this as well as in other parts of the body, than seems readily to have been conceived of; and that a simple operation, opportunely performed under such circumstances, and in similar cases, may probably prove more successful than it is generally experienced to be, when
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the complaint is differently circumstanced; that is, when the tumor advances slowly, and has not been preceded and accompanied by inflammation.

The cavities of the Thorax, the cavity of the Pericardium, the cavity of the Abdomen, and the cavity of the Cranium, being lined with membranes of a composition resembling the Tunica Vaginalis; and these membranes being furnished with serous arteries, for the same purposes as the Tunica Vaginalis Testis is, are undoubtedly at times suddenly attacked with considerable extravasations, proving more or less inconvenient and dangerous to the afflicted; and in a degree proportional to the violence of the attack, as well as to the importance of the part itself. These diseases, when sufficiently known and comprehended, by peculiar signs, that are observed to distinguish the complaint, do often admit of considerable relief, and sometimes of an effectual cure, from manual operations; as we see and experience in the course of an unlimited and extensive practice.

To enable the unexperienced, with a degree of certainty, to know and distinguish the Hydrocele of the Tunica Vaginalis Testis from every other species of tumor incident to these

parts, there are certain rules prescribed by authors who have written on this subject; the most remarkable of which I will here repeat, and consider of; observing, at the same time, in what respect they may by the experienced be discovered from each other to differ.

In the Hydrocele proceeding from relaxation, or from perhaps a rupture of some few of the adducing lymphatic vessels of the Tunica Vaginalis Testis, the tumor at first is very small, being not at all inconvenient, or troublesome during such a mild state of the disease; in some constitutions its encrease is very slow; many years elapsing from the origin of it, before it arrives at such a size as to be offensive or troublesome; whilst in other constitutions, or where many lymphatics of the adducent, or abducent class are impaired, and the circulation is by these means interrupted, the swelling encreases very fast; and becomes in a few months so large, as to oblige the afflicted to seek for relief from surgery.

The swelling is generally described as being free from pain; and that there is not any inconvenience attending it, but such as proceeds from its size and weight: this freedom from
 pain

pain may reasonably be accounted for, not merely from a want of sensibility in the Tunics of the Testis, and the Scrotum; but from the gradual distension which they have undergone, as well as from the gradual pressure which the Tunica Albuginea has sustained, and their being quite free from inflammation at the same time; but when it happens that this disease is suddenly brought on, and that an inflammation and irritation have preceded, and attended the complaint, the circumstances are greatly altered; and with this alteration of circumstances, there must be an alteration of symptoms; so that speedy assistance will be found necessary from general, as well as from topical remedies: as was the case in the instance of the young gentleman already described; to whose history we must refer for a confirmation of the reasonableness of such practice; as well as the favourable result of it.

In the Hydrocele, the Testis is said to be concealed from the touch; this may sometimes possibly be the case; but it will not often prove so to the man of experience, who is perfectly acquainted with the natural, and exact situation of the Testis, agreeably to the description already
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given in the anatomy of the part, to which, if necessary, reference may be had.

In the Hydrocele of the Tunica Vaginalis, the Penis is sometimes contracted, or drawn inwards, as has been by many observed; instances of which I have several times seen; and to so great a degree, as effectually to bury the Penis, leaving hardly any vestige of its existence; when this is the case, great inconveniences in making water are found to arise, attended with an excoriation of the Scrotum; added to this, the man is, during this state of the tumor, rendered incapable of procreation.

This tumor is farther observed to be distinguishable from an Hernia Scrotalis, or in other words from a descent of a part of the Omentum, or the intestine, or part of both these Viscera together, into the Scrotum; because in the Hernia Scrotalis, the Testicle may always be felt; which is not always to be done in the Hydrocele; but certainly a more obvious and easy rule may be laid down on this occasion than the preceding, by saying that in the Hydrocele, the tumor can never be made to disappear by any position of the body, or pressure by the fingers and hand; whereas in the Hernia

nia Scrotalis, unless it be adherent, or incarcerated, the tumor may be made to disappear by a favourable and horizontal position of the body, assisted by a gentle pressure on the tumor; at the same time directing your patient to inspire freely and forcibly, which will facilitate the return of the prolapsed parts.

The Hydrocele, by some it is said, cannot be always readily distinguished from a scirrhus of the Testicle, since it is observed that many have been deceived in tumors of this kind: but, with proper care and attention, an experienced surgeon, I think, may always have it in his power to discriminate betwixt the one and the other: because in the Hydrocele there always is a greater or less quantity of fluid that makes the swelling; which, on being pressed upon, recedes, or gives way, so long as the pressure is continued on the Scrotum: whereas in the cancerous Testis there is no fluid, except a very small quantity which is sometimes discoverable in the centre of the Testis upon dissection, subsequent to castration: in cases of this kind, a stony resistance is made to the touch; and it does by no means yield, or give way to the fingers when pressed upon, as the Hydrocele does.

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In the Hydrocele, the fluid is sometimes apparent from the thinness and distension of the Scrotum and Tunica Vaginalis Testis; as well as from the limpidness of the serum, by holding a candle on the side of the Scrotum opposite to that upon which you look; and sometimes too, from common day-light this is evident without the assistance of a lighted candle; but it is very far from always being so, as repeated experience evinces.

The least præternatural degree of thickness on the Scrotum is sufficient to obliterate the transparency of the swelling; so is a turbid, bloody, clay-coloured, or coffee-coloured kind of lymph, capable of producing the same effect.

The fluctuation then in the tumor is the grand criterion by which the surgeon must be determined; and I may venture to add, that a skilful surgeon, in this point, will very seldom err: but it must at the same time be confessed, that this accuracy of touch so much depends upon repeated practice and observation, that, without such advantages have been previously obtained, no certain judgment in difficult cases can be given; how therefore verbally to deliver such an opinion, or to lay down such rules as shall be capable

pable of sufficiently instructing the unexperienced, is a task so difficult as to require more abilities, I am convinced, than I pretend to be possessed of.

From repeated operations performed on the Scrotum, for the design of giving a temporary relief in the Hydrocele, I have known the integuments and Tunica Vaginalis at length acquire so great a degree of thickness, as to render the discovery of a fluid very difficult; and at length the best rule I had to guide me was, my being used to attend the individuals, before these alterations or changes in the parts were brought on; which were gradual.

A Gentleman of my acquaintance, much advanced in years, has at different periods been tapped by me for an Hydrocele about thirty times since the year 1752: at first the parts appeared in their natural state, so that there was no difficulty attending the discovery of a fluctuation within the Tunica Vaginalis Testis: but of late the parts have acquired a considerable degree of thickness; and from this cause, as well as from the Hydrocele of the Tunica Vaginalis Testis being complicated with a considerable Hernia Intestinalis Scrotalis of the adherent kind, the discovery of a fluid is now rendered far from being so obvious as at first: but at the same time
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be it remembered, that the tumor in its most enlarged and distended state, is not accompanied with that firm and stony hardness, as there appears to be in tumors of the Testis, proceeding from a schirrhus, or cancer ; nor is the Scrotum in any part become callous.

The upper extent, or limits of the tumor, formed by an Hydrocele of the Tunica Vaginalis Testis, is by some mentioned as almost a certain criterion by which we may discriminate betwixt an Hernia Scrotalis, and an Hydrocele. This, it must be confessed, is generally the case ; but it really is not always so : for in many instances, the Tunica Vaginalis Testis will be found, by the pressure arising from the contained fluid, to form a tumor as high up as the Abdomen : where a perforation is naturally formed in the tendinous expansion of the Obliquus Descendens muscle, for the transmission of the spermatic chord ; in which respect it bears a resemblance to the upper part of the tumor formed in consequence of an Hernia Scrotalis.

Again it will be found, that the transparency of the tumor is a fallible sign ; I mean in young children ; for in many instances I have observed an Hernia Scrotalis in such subjects, to be quite transparent ; assuming very much
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the appearance of a watery swelling; and I have known, and seen men of experience misled in such cases: to which mistakes we should still be rendered oftener liable, had we not more certain tokens to distinguish by, than such a transparency of parts.

A judicious surgeon, and a man of considerable experience in his profession, I once saw puncture the Scrotum of a child which was brought to him for his opinion, upon a presumption that it was an Hydrocele of the Tunica Vaginalis; but the case proved an Hernia Congenita of the Omentum: a part of which thin, tender, and transparent body immediately made its appearance through the punctured part of the Scrotum: seeing this, the surgeon proceeded to the dilatation of the wound; and without making any ligature upon the part, so much of the prolapsed Omentum was cut off as appeared: the child felt no inconvenience from this lucky mistake; for he did perfectly well, without a single unfavourable symptom that followed the operation.

REMARK.

R E M A R K.

For the temporary relief of some, and for the effectual cure of others, who are attacked with so troublesome and irksome a complaint as the Hydrocele of the Tunica Vaginalis Testis is by many experienced to be ; there are by surgeons two modes of operating proposed, and put in practice ; and for different purposes: the first is termed the palliative method, the second the radical method of treating the disease.

The palliative method of operating is very expeditious ; in its mode it is perfectly simple : in its nature it is almost void of pain : and in general it requires little or no confinement ; but the disease almost always returns, and occasionally demands a repetition of the like operation ; this mode of treatment requires little or no confinement, or any other application than a superficial dressing to the punctured part of the Scrotum, and a bag truss to suspend the parts withal : the consequences that follow the radical method of operating, essentially differ from the palliative ; for this operation cannot be successfully done, without it be followed by some pain,

pain, and a certain degree of inflammation; which degree of pain and inflammation is always succeeded by a greater or less degree of a symptomatic fever; proportional to the violence of pain the patient endures, and the suddenness and extensiveness of the inflammation that attacks the Scrotum, as well as the Tunics of the Testicle, the Testicle itself, and the Epididymis. In consequence of such inflammation, there ensues a temporary enlargement, a temporary distention, and a temporary induration of these several parts; which symptoms continue to encrease till a suppuration comes on; and they even remain till such suppuration is pretty considerably advanced; when all that was at first painful, disagreeable, and irksome to the patient, gradually diminishes; and continues so to do, till, by the mitigation of the inflammation and the removal of the tension, the parts subside, and at length are thus nearly restored to their original state; with this difference, that a compleat adhesion of the Tunica Vaginalis and Albuginea take place: and by this means the natural cavity of the Tunica Vaginalis is obliterated. The Scrotum still preserves its natural flaccidity and capacity of moving on the Tunica Vaginalis Testis: altho' the Tunica Vaginalis Testis, and

Tunica Albuginea are by their Adhesion to each other deprived of this power. These changes are gradually and commodiously brought about by a quiet horizontal position of the body and limbs, by an abstemious liquid diet, by cooling medicines, by opiates, and by evacuations from bleeding, clysters, and purges, joined with topical emollient fomentations, superficial, mild, digestive ointments, and soft relaxing cataplasms, repeated, and continued, for a greater, or less length of time, as occasion may be found to require.

OF THE PALLIATIVE METHOD OF OPERATING ON THE HYDROCELE.

After placing your patient opposite to the light, on a chair of a convenient height, or on the side of his bed or couch; or rather by making him stand in an erect position, as being most convenient; first observe, gently to embrace the superior part of the Scrotum, with one hand; then with an imposthume lancet held in the other hand, suddenly puncture the tumor on its most thin, fluctuating, prominent, or depending part: continue to embrace and gently to compress the Scrotum as at first, till the discharge
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quite ceases, or begins to cease; when this happens, let the part quite loose, and you will seldom fail of evacuating the contents of the tumor in a very expeditious and effectual manner, without the assistance of any other instrument than the lancet. After the lymph is totally evacuated, apply a bit of soft lint to the wound; and over the lint apply a bit of sticking plaster spread upon a rag, or thin leather; which may be left on till they spontaneously drop off: or instead of the lint and plaster, apply a rag double or treble to the Scrotum; which may first be sprinkled with brandy, spirit of lavender or Hungary water; keep the rag on with the bag truss: this operation should be repeated in the like manner, as often as may be found expedient, on account of the size and weight of the returning swelling.

I prefer the imposthume lancet to the trocar, because it is the most easy and expeditious way of evacuating the fluid; and because too, the *Tunica Vaginalis* and *Tunica Albuginea* do not suffer as they sometimes do from the canula of the trocar being left in the wound during the discharge of the lymph. After this mode of operating, it sometimes happens, that a general inflammation attacks the parts attended with symptoms, like

those which succeed the radical cure for the Hydrocele; in consequence of which a perfect cure is brought about.

OF THE RADICAL METHOD OF OPERATING ON THE HYDROCELE.

To effect this purpose, there are four different methods put in practice; and finally with equal success too: though not with equal certainty or equal lenity; provided the surgeons be men of experience, and have been much accustomed to the treatment of this complaint. The practices by incision, by caustic, by the puncture and tent, and by the seton, are the four different modes which have long prevailed amongst the skilful in surgery for the perfect cure of this troublesome complaint; and which to this day are by different practitioners recommended, and pursued on this occasion; some giving preference to the mode by incision; some to the mode by caustic; some to the puncture and tent; and others again to the seton: by some there is a fifth method added to the four preceding, for the radical cure of the Hydrocele; I mean, first by opening the tumor by incision, and then dissect-
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ing away the whole of the Tunica Vaginalis; but this method is in its nature so tedious, so painful, so unnecessary, and in its consequences so dangerous, that, for these reasons, I believe it now has few, or no advocates left; and therefore to me it seems not necessary to expatiate or descant upon it.

OF THE OPERATION, OR RADICAL CURE OF THE HYDROCELE OF THE TUNICA VAGINALIS BY INCISION.

This method of operating, under the hands of the skilful, I have long observed to be very expeditious, safe, and successful in its consequences; having never seen, that I remmember, any fatal effects arising from it, nor any relapse into the same complaint, except in one instance, which will hereafter be related. The only instruments necessary for this purpose, are a sharp small knife constructed with a convex edge and point, and a pair of sharp scissars. The best method I know of performing the operation is this: seat your patient on a chair, or on the side of his bed or couch; or, as being more convenient to the ope-

rator, let the patient stand upright. Then with one hand steadily embrace the tumor on its upper part; and with a knife, held in your other hand, begin the wound at the upper and anterior part of the tumor, resolutely continuing it to its inferior extent; the water by this incision is suddenly evacuated, and the tumor disappears; the Scrotum and Tunica Vaginalis immediately subside and lie upon the Testicle; sometimes the edges of the divided tunic project on each side of the Scrotum from a rigidity or flaccidness which this coat has acquired; if it proves so, immediately remove the projecting parts of the tunic, by clipping them off with a sharp pair of scissars; or by cutting them away with the knife; and, if the incision has not already been made sufficiently long to reach from end of the bag to the other, enlarge the wound with your knife or scissars, by introducing your fore-finger of the left hand through the wounded tunic, as a director; which in this flaccid state of the integuments and Tunica Vaginalis, you will find may be much more commodiously and expeditiously effected with the scissars than with the knife.

After the operation is thus performed, dress the wound in a very superficial manner with dry lint, or with a pledgit of lint spread with some
soft

soft and cooling ointment, such as the *Linimentum Album*, or the *Unguentum Saturninum*, or the *Unguent. Florum Sambuci*: over the lint apply a pledgit of soft tow spread with the same kind of ointment; or, if you please, apply a second larger pledgit of lint upon the first: then let your patient be put to bed; or let him lie in an easy, or quiet posture upon a couch; observing to suspend the parts in a bag truss; and occasionally to pursue such methods for the future treatment of the disease, as in the preceding chapter have already been proposed.

N. B. The removal of the edges of the diseased *Tunica Vaginalis*, I have often observed, has been attended with little or no pain; nor does any part of the tunic that is left behind become painful, till an inflammation succeeds: which happens sometimes sooner, sometimes later; seemingly in a great measure dependent upon different constitutions; and is a circumstance absolutely necessary to the cure of the disease: the inflammation of the whole tunic being quite necessary to prevent a return of the disease by producing an adhesion of the internal surface of the *Tunica Vaginalis Testis*, with the external surface of the *Tunica Albuginea*.

OF THE OPERATION, OR RADICAL CURE OF THE HYDROCELE BY CAUSTIC.

This method of treating the disease has already been so judiciously and satisfactorily treated of, by my ingenious friend and acquaintance Mr. Elfe, of St. Thomas's Hospital, that I think it quite unnecessary for me to say any more on this occasion, than to refer the reader, for his information and improvement, to the second edition of Mr. Elfe's pamphlet, on the subject of the the cure of the Hydrocele of the Tunica Vaginalis Testis.

OF THE RADICAL CURE OF THE HYDROCELE BY THE PUNCTURE AND TENT.

For the purpose of effecting an absolute cure of the Hydrocele of the Tunica Vaginalis Testis, by this easy, safe, and simple method, the only rules I know of, necessary to be laid down, are the following :

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Place your patient, and puncture his Scrotum sufficiently deep with an imposthume lancet, as I have already advised in the chapter entitled, “The palliative Method of operating on the Hydrocele.” When the contents of the tumor are quite evacuated, introduce a bit of sponge tent, equal in size with the orifice, and about three fourths of an inch in length, through the wounded Scrotum and Tunic, having first secured the tent by means of a bit of double thread passed through one end of the tent, to prevent its slipping into the cavity of the Tunic; and by this means to render it less difficult to extract the tent upon a future occasion. Cover the tent with soft lint, and upon the lint apply a bit of sticking plaister: suspend the parts in a bag-truss, and let your patient be quietly kept either up or in bed, as he may chuse; preserve the tent in this situation, with the lint and plaister, till an inflammation begins to take place: now let the plaister, the lint, and the tent be removed; and renew them a second time, as was at first done. Repeat this operation as often as it may be found safe and expedient so to do, for the production of a general inflammation of the part. Treat your patient, if you approve, as you may hereafter observe to have been done
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in the history of the subsequent cases; to which I take the liberty of referring my readers, as being, I think, the best and most satisfactory account I can give them on this occasion.

C A S E I.

A. B. aged sixty-three, about eight months before he applied to me, received a blow upon his Scrotum, which soon afterwards began to swell; and so it continued gradually to do till this time, without any or at most with very little pain.

Upon inquiry, the tumor appeared to contain a fluid; which with an imposthume lancet I evacuated, to the quantity of at least ten ounces: the lymph was clear, and almost colourless. Soon after this operation, the fluid began again to collect, which gradually increased till the tumor had arrived at its former size; for this reason the patient was induced to solicit for farther relief; which I afforded him, in the same manner as I had at first done. After the whole of the lymph was evacuated, I introduced a bit of sponge tent, with a needle and thread passed through one end of the tent, into the orifice of the Scrotum and Tunica Vaginalis:

ginalis: the tent was adapted to the size of the puncture; and it was in length about three fourths of an inch. Over the tent I applied some lint, and over the lint a bit of sticking plaister, with an hole cut through the plaister, for the passage of the thread that was passed through the hither extremity of the tent, and was left hanging upon the Scrotum: for twenty-four hours the tent remained fixed in this situation, without inducing pain, or producing any visible effect on the part. Seeing this, I permitted the tent to continue till the third day.

The Scrotum now began to appear somewhat indurated, and it was generally inflamed: for these reasons I removed the tent, and superficially dressed the wound with yellow Basilicon spread on a soft pledgit of lint; afterwards covering and immersing the whole Scrotum in a cataplasm, composed of stale crumbs of bread and milk; to which was added a sufficient quantity of sallad-oil, for the purpose of keeping this application sufficiently moist and soft.

On the fourth day succeeding the operation, a small quantity of thin matter oozed through the orifice: from this time to the end of the fourteenth day, the discharge continued gradually

ally to increase ; and on one side of the orifice a small, soft, elevated tumor, containing matter, shewed itself: this Abscess I opened by incision, and thus evacuated about an ounce of thick matter. From this time the discharge from the first orifice was much lessened ; and it continued diminishing, till the wound was perfectly healed ; which happened in a few days afterwards.

The once inflamed tunics now appeared to adhere ; in consequence of which, no space nor cavity remained betwixt the internal surface of the *Tunica Vaginalis Testis* and the external surface of the *Tunica Albuginea* ; and thus a perfect cure was effected.

N.B. It is worthy of observation, that the pain and symptomatic fever, which attended the progress of this cure, were so mild as to render it unnecessary for the patient to be confined to his bed for a longer time than two days ; for which reason too, evacuations, opiates, and febrifuge medicines, were, in this instance, rendered useless. This was a single Hydrocele.

C A S E II.

G. W. aged fifty-eight, applied to me on account of a tumor on one side of his Scrotum; which, from the fluctuation of the contents, as well as from his having no pain on the part but such as proceeded from distention and his being in a good state of health, made it easy to discover what the nature of the case was: he ascribed the cause of his complaint to a blow.

I tapped the Scrotum, on its most depending and prominent part, with an imposthume lancet; by which operation a pint of clear and yellowish lymph was very speedily evacuated: and without pain, or any future inconvenience than a relapse into the same disorder.

When the tumor began again to become troublesome, on account of its size and weight, he applied to me for farther relief; which I afforded him by the same easy and expeditious method I had at first done: and, agreeably to his desire, I attempted the radical cure, just as was effected in the case of A. B. The tent was left to remain in the orifice for forty-eight hours:

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at the end of this time I removed the tent of sponge, and in its place I substituted a tent of lint, secured by tying one end of it with a thread. The symptoms that happened in this instance were not so favourable as they were in the case of A. B.; for, on the first night after the operation, the man was restless; and on the next day at noon he complained of an uneasy sensation in his Abdomen: on the third day after the operation, the Scrotum, upon inspection, seemed somewhat inflamed, having assumed a smooth and shining appearance. The part was very tender, and painful upon being pressed on with the fingers; and he now complained of pain, extending up with the course of the spermatic chord to the loins. To relieve the uneasiness in his bowels, a warm emollient clyster was administered by way of internal fomentation, and at the same time with hopes of procuring a gentle evacuation by stool; which happened about twelve or fourteen hours after the clyster was given. The night of the operation, and on the following night, an anodyne was administered. The third day after the operation the patient was taken sick, accompanied by retchings to vomit, and a slight fever: these symptoms were relieved by the saline

saline draught administered, and repeated at proper intervals; observing, at the same time, to keep the body moderately open; which purpose was effected by occasionally adding a gentle purgative to the saline draughts. On the fourth day the tent was omitted, and the wound was in all respects treated as was done in the case of A. B. On the fifth day the lips of the wound had put on a swollen or turgid appearance; and thereby the orifice, for the present, was obstructed. The man was confined to his bed from the second day, and was treated as is usually done by the skilful in similar cases. Last night he slept very well; and his retchings and sickness are very much abated, but not quite removed. At intervals he still complains of uneasy sensations in his belly; and his pulse now appearing more full, hard, and quick, than had hitherto been observed, it was thought expedient to take eight or nine ounces of blood from one of his arms; which much relieved him. On the seventh day the orifice gaped; its tumefied lips began to subside; and a discharge of thin matter issued forth in a small quantity: the tumor and inflammation of the Scrotum remain in a considerable degree. He still keeps his bed; and the same dressings are continued to be applied as before; his sickness

ness and retchings have quite disappeared ; and since yesterday he has had three stools. The parts have acquired a stony hardness ; and from the stretch which the integuments are put upon, the swelling resembles an uniformly distended and hard body, leaving no evident distinction or separation of parts : in short, the tumor perfectly resembled a venereal *Hernia Humoralis* of a severe kind. From this time there were no returns of sickness, or pains in the Abdomen : there is an increase of the discharge from the orifice of the Scrotum, and the tumor begins to soften. The pulse is now become softer and quieter. He has a desire of eating solids ; but at present that is not complied with.

On the ninth day the discharge from the wound was increased ; the lips of the wound begin to subside, and to recede from each other ; and the matter is become more thick and white than before : he has good nights ; but, occasionally, it is still found necessary to keep open the body with clysters.

Tenth, eleventh, twelfth, thirteenth, and fourteenth days, the Scrotum and its contents continue to discharge, and the hardness and size of the tumor gradually diminish ; so that the parts have at length, in a good degree, lost their tension,

sion, and admit of being handled with very little pain. The patient is now indulged with solids; but it is still necessary to keep the body in an horizontal position.

On the fifteenth or sixteenth day the Scrotum burst in two different places, near the original puncture; from which openings there issued a considerable quantity of matter, mixed with a small slough. From this day perfect ease succeeded; and the tumor and inflammation were in a few days afterwards removed. The wounds from this time healed very fast; and, in short, within the space of four weeks, the patient was in all respects perfectly well: to all appearance, leaving the same vestiges and consequences, as happened in the preceding instance, as so many proofs of his being radically cured of his troublesome disorder.

C A S E III.

J. B. an healthy young man, aged thirty-two, about nine months since was attacked with a tumor on the right side of the Scrotum; the cause of which he ascribed to a strain. From that time the tumor increased, till he applied for my assistance; which was in three months after he first

complained. With an imposthume launcet I evacuated the lymphatic contents of the Tunica Vaginalis: by this means the swelling was totally reduced, and the patient for the present sufficiently relieved.

In six months afterwards, on the like occasion, he made a second application to me: by the same means as before, I relieved him. Through the puncture of the Scrotum a small portion of the Tunica Vaginalis, in a loose and flaccid state, issued forth: as soon as the lymph was wholly evacuated; with a pair of scissars I snipt off so much of the Tunic, or Cyst, as protruded. Afterwards I introduced a bit of prepared sponge tent, nearly resembling the size and shape of the orifice, and in length about three fourths of an inch: the tent I covered with a bit of lint; and the lint with adhesive plaister: which for the three following days were retained in the same situation: at the end of this time, the lips of the orifice and its neighbouring parts appearing to be very little swelled or inflamed, a second sponge tent, resembling the former, was introduced, and kept in the Scrotum till the fifth day. The inflammation and tumor being as yet very slight, and the patient complaining of little pain, I was induced to use the
sponge

sponge tent a third time: and to continue it in the wound till the seventh day. Upon inspecting the parts, the Scrotum on its right side had assumed an inflammatory appearance: the parts felt hard; and upon the Scrotum being lightly pressed, a small quantity of thin matter was discharged.

The patient, as yet, complains of little or no pain: walks about, as if nothing had been done; and, hitherto, no medicine but an opening infusion has been thought expedient.

From this time, till the tenth or eleventh day, the patient was free from pain or fever; for which reason, the sponge tent was every day introduced as at first.

On the tenth and eleventh days, a good deal of thin matter was discharged through the orifice: the neighbouring parts appearing somewhat inflamed, and considerably indurated.

On the eleventh day, in the evening, the patient was suddenly attacked with a rigor: this symptom was succeeded by an increase of inflammation, and pain on the right side of the Scrotum; and the man complained of the pain extending to the groin of the same side.

On the thirteenth day, the enlargement and inflammation of the punctured side were increased;

creased; but since yesterday the pain was lessened.

Ever since the eleventh day the patient has been confined to his bed: clysters are occasionally administered; and the saline draught, sometimes alone, and sometimes with the powder of the Contrayerva root, are given at proper intervals. There has been neither pain nor tension of the abdomen; nor has there been any complaint in the loins.

To-day, on his endeavouring to rise from bed, he complained of great languidness; so that it was irksome to him to sit up more than half an hour.

From the thirteenth to the fifteenth or sixteenth day, the tumor and inflammation of the Scrotum and its contents increased: the Scrotum, upon being slightly touched, was painful. He has very little fever; and his nights are quiet and composed, without the use of anodynes.

On the seventeenth day he complained of depression and lowness of spirits: which disagreeable symptoms were soon removed by the assistance of cordial medicines.

The wound now discharges freely; which is, and has been for several days, treated superficially

ficially with soft digestive ointments, and emollient suppurative cataplasms, as ought always to be done in this stage of the disease.

From this time the tumor varied but little, till the nineteenth or twentieth day; when a swelling, which for a few days had been advancing, burst of itself; and discharged a good deal of matter. This Abscess was situated on the anterior part, and about the middle of the Scrotum.

For the two last nights, the man rested but little; which watchfulness he ascribed to no other cause than his being continually confined to bed, which he was not used to.

Within a month the wounds were healed, and the induration of the Scrotum was removed: but this cure was not so complete as were the two preceding; for on the superior and exterior part of the Scrotum, near to the Septum of the Tunica Vaginalis, there was a small quantity of lymph deposited, and retained in that portion of the Tunic which had escaped the inflammation; however, the inconvenience from these slight remains of the disorder the patient considered as quite trifling; and he went away perfectly happy with the success of his operation.

But, before he left me, I punctured the Cyst with a lancet, and evacuated the contents; which were small in quantity, and not at all tinged with blood. This I did more through curiosity than necessity, and that this account might be rendered more perfect and satisfactory than it otherwise would have been. Two months after he called upon me, and informed me that he was quite well, which upon examination I found to be so.

C A S E IV.

—— Esquire, a gentleman of distinction, some time ago, called upon me, with his family physician and surgeon, to consult me on account of a very large tumor which possessed the Scrotum. We all agreed that the contents of the swelling were fluid; and it was at the same time suspected that the fluid was uncommonly thick. The complaint had been of many years standing, and had never been painful to any important degree; but on account of its size and weight, it was now become so inconvenient to the gentleman, as to render it necessary for him to apply for relief. The integuments of the Scrotum were considerably thickened; but not at all discoloured.

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We determined upon making an opening into the inferior part of the Scrotum; which, in the usual manner, I did with an imposthume lancet of the largest size. Upon the first introduction of the lancet, little or nothing followed; for which reason I introduced the lancet a second time into the wound, and thereby moderately enlarged it; a thick clay-coloured discharge slowly issued through this large orifice, and in quantity pretty nearly a pint and half: but there apparently remained behind a considerable deal of something still more viscid than what had been evacuated; of which the patient was apprized. Some hours afterwards, as I was informed by his surgeon, the orifice opened: the dressings fell off, and gave vent to a considerable deal of gelatinous liquor, mixed with solid lumps resembling wetted clay. A few days after the first operation, I was desired to visit this gentleman at his own house: upon inspecting the part, and seeing the orifice still remain open, and that through the orifice more or less of a viscid or gelatinous fluid was every day discharged, I advised the introduction of a sponge tent: which was readily complied with, and that the whole Scrotum should be involved in the Cataplasma Maturans of the London Dispensatory. For some time this

method was pursued; and an inflammation of the whole Scrotum was gradually brought on: for some weeks the discharge continued in moderate quantities. At length the Scrotum imposthumated, and burst on its exterior and middle part; from whence a great deal of very foetid matter was discharged. By superficial deterfive dressings, and by the use of discutient plaisters, joined with the bark given at proper intervals, the whole Scrotum was reduced to its natural size; and the patient, in all respects, is now perfectly well.

This gentleman is betwixt sixty and seventy years old; and now enjoys a better state of health than he had for some time done before the operation.

During the process of this cure, the symptomatic fever was so slight as to render it unnecessary for him to be confined to his bed; and, although this was a single Hydrocele, it was nevertheless of so considerable a size and extent, as seemingly to possess the whole Scrotum; leaving no visible distinction of parts.

OF THE RADICAL METHOD OF OPERATING BY THE SETON.

If this method of operating should upon any occasion be preferred to either of the preceding; the use of one instrument instead of more will be found exceedingly easy to the operator; as well as more expeditious and less painful to the patient. For this purpose, the instrument I recommend is a silver needle of a convex form; in length about six inches, and tipped with a sharp steel point.

Through the eye of the needle should be passed a narrow white sattin ribbon, or piece of fine tape, about ten or eleven inches long, as being in their texture inseparable and less likely to injure the Tunica Albuginea and Testicle, by easily slipping over the surface of that coat; and by this means to prevent the cure from being retarded, as has been experienced when a skain of silk was used. The ribbon, or tape, may be rendered more soft, smooth, and slippery, than it naturally is, by first anointing it with oil, or pomatum.

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The mode of operating may be as follows : Introduce the point of the needle through the superior, and anterior part of the tumor, or through its superior and exterior part, with the convex side of this instrument looking towards the Testicle ; direct it downwards to the lower end of the Tunica Vaginalis and Scrotum ; and there puncture the integuments quite through ; afterwards convey the needle and ligature downwards, till the ligature has passed sufficiently for the intended purpose of being properly secured in its place by tying both ends of the string together, or by securing them from slipping through, or by any other means that may be thought more eligible.

For the space of forty-eight hours let the ribbon remain unmoved : then observe carefully to draw it upwards and downwards, once or twice a day, as may be thought necessary. Treat your patient in the same general manner as has already been advised, with such difference as the nature of the case may occasionally require.

In this method of operating for the purpose of effecting a radical cure of the Hydrocele ; as well as in every other method that is practised with this design : we must not only expect, but endeavour to bring about, a temporary and general

neral inflammation of the part, together with induration, enlargement, and suppuration; and by these means to cause a perfect adhesion of the tunics of the Testicle; or to destroy the Tunica Vaginalis: for, unless the one or the other of these effects be produced, a relapse into the same disorder is to be expected. For whenever either of these four methods shall, in preference to another, be recommended, as being free from inflammation, pain, symptomatic fever, tumor, and suppuration; it is indirectly declaring, that such method will not prove effectual.

C A S E I.

A. B. aged twenty-six, had for some years been incommoded with an Hydrocele of both the Tunicae Vaginales Testium: for the cure of which complaints he at length put himself under the care of a surgeon of considerable eminence: In hopes of effecting a radical cure, a small caustic was applied to each side of the Scrotum; the applications of the caustics were made at about the distance of seven months from each other. Three weeks after the application of the second caustic, I was desired by the surgeon, during his absence
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of two or three days, to visit this patient. When I first saw the gentleman, he was confined to his bed with a bilious fever, and for this reason he was attended by his physician : The wound on the left side of the Scrotum was not then healed; but the sore appeared with no unfavourable aspect; the edges of that part of the Scrotum and of the Tunica Vaginalis Testis, which were destroyed by the caustic, appeared to adhere to the Tunica Albuginea; and this, as far as I was able to discover, was plainly the case in every other part of the Scrotum, of the Tunica Vaginalis Testis, and of the Tunica Albuginea on that side. On the right side of the Scrotum, where the first caustic had been applied; and which wound, it seems, had been healed about six months, I perceived an enlargement and distention of the part; which upon the touch appeared to be a partial return of the Hydrocele: this I took the liberty of remarking to his surgeon. From this time the patient continued ill of his bilious complaints till he died; which happened about ten weeks after I saw him. This accident furnished several surgeons of eminence, and myself, with an opportunity of dissecting and examining the diseased Scrotum and Tunics. Upon inspection, the Tunica Vaginalis Testis on the left side appeared to adhere in every
part

part to the Tunica Albuginea; and it further appeared, that no other part of the Tunica Vaginalis Testis was destroyed, but that with which the caustic had come in contact: on the right side of the Scrotum, the adhesion of the Tunica Vaginalis Testis to the Tunica Albuginea was in part only; for to that part of the Tunica Vaginalis Testis already described, to which the inflammation had not sufficiently extended, there was no adhesion to the Tunica Albuginea: and in this part of the cavity of the Tunica Vaginalis Testis were contained several ounces of lymph: however it is probable, I think, that the whole of this Tunica had been in some degree affected by the caustic, tho' not sufficiently; because the Tunica on this side was præternaturally thickened in every part: which probably would not have been the case had it never been at all inflamed.

C A S E II.

C. D. about forty-eight years old had for some time been incommoded with an Hydrocele of the left Tunica Vaginalis Testis; the tumor contained a little more than a pint of lymph: I advised my patient to undergo an incision of the
part

part in hopes of effecting a radical cure. He took my advice, and submitted to it. In the operation I removed part of the Tunica Vaginalis Testis; and pursued the usual method for his cure; but in vain; for, notwithstanding the wound continued open for more than three weeks, there remained little or no inflammation of the parts: the patient had no symptomatic fever; and in a short time after the healing of the wound the parts began to grow large again; so that at the end of eight or nine months he applied to me to relieve him. I taped the swelling with an imposthume lancet, and let out ten or twelve ounces of fluid: very thin, and but little discoloured: the Scrotum scarcely appeared to be altered from any thing that had hitherto been done.

These two instances are adduced as proofs of the possibility of the operations failing, however carefully and judiciously they are performed; and the latter case I relate as an instance of some constitutions being so circumstanced as at particular times to have very little disposition to shew any inflammatory symptoms, even when such events are most expected.

C A S E III.

About four years ago I performed the operation by incision, for the cure of an Hydrocele of the left Tunica Vaginalis Testis, upon a gentleman of thirty-eight years old: the cyst contained five pints of lymph: and the patient has never had the least return of his disorder, notwithstanding the enormous size of this tumor: but during the cure there was a considerable degree of fever attended with inflammation, enlargement, and induration: and finally a considerable digestion or supuration of the parts followed: however all these symptoms gradually disappeared; the parts were reduced to their natural size, and at the end of five weeks the wound was perfectly healed. The disease originated about nine years before he consulted me. It was by much the largest tumor I had ever seen of the kind; and some months before I undertook the radical cure, I taped the Scrotum with an imposthume lancet, and let out five pints of lymph by this operation.

C A S E IV.

February 25, 1774.

To-day about ten o'clock in the morning Mr. J. B. aged forty-eight, in all respects an healthy man, except that he was troubled with a scorbutical eruption on one of his arms and hands, had the operation of the Hydrocele by incision performed on the left side of the Scrotum: after the incision was made the whole length of the tumor, a small portion of the Tunica Vaginalis was removed. About half past three o'clock in the afternoon, as he sat in his chair, he was seized with a languor approaching to fainting away; but upon lying down he soon recovered. In the evening he got up and was in good spirits; but at night betwixt nine and ten he was a second time seized with a languor approaching to a Syncope; of which he immediately recovered by being put into bed: At ten o'clock at night I gave him half a drachm of Confect. Card. with twenty drops of Tinct. Thel. made into a draught with simple Cinnamon water: he lay all night very quiet, and had some sleep: As yet he has had no complaint but a soreness in his wound.

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It is now twenty-four hours since the operation was performed.

Saturday Morning, Feb. 26th.

About one o'clock this afternoon I perceived his pulse to grow quick; but he did not complain either of pain or restlessness; his breakfast of tea and milk sat very well on his stomach. He passed the whole of this day in bed without any complaint.

Sunday Morning, Feb. 27th.

He has had an exceeding good night by means of eight drops of Tinct. Thebaic. put into a draught of half a drachm of Confect. Cardiacæ, which he took at bed-time. Last night he perspired moderately; I dressed his wound this morning; from which as yet there is no digestion, nor are there any appearances of inflammation or turgidness of the Scrotum; there is no complaint in the Abdomen, nor in any other part: this afternoon he had a natural costive stool.

Monday Morning, Feb. 28th.

He has had an exceeding good night without the use of an opiate: there is as yet no pain in

the abdomen, loins, or in the spermatic chord: the Scrotum appears somewhat turgid: and the lips of the wound begin to separate: but there is no matter yet from the edges or surface of the wound.

Tuesday, March 1st.

Last night he slept but little, on account of the piles that attacked him yesterday; the Scrotum on its inferior part feels somewhat hard; the wound gapes, and from it there issues some lymph. This morning he took a dose of Infus. Sen. and Tinc. Sen. as he had had but two small stools since Thursday last: three gentle evacuations were by this means procured.

Wednesday Morning, March 2d.

He has passed a tolerable night, and has had one stool to-day. The tumor of the Scrotum, Testis and Tunics increases in size and hardness; there is no pain in the abdomen or back; nor are there as yet any feverish symptoms worth regarding. He continues to live without any thing of the meat or fish kind. He sits up seven or eight hours every day.

Thursday,

Thursday Morning, March 3d.

He has no complaints: the enlargement, induration and tension of the Scrotum, are pretty much as they were yesterday. Last night there was a serous discharge from the wound.

Friday Morning.

He is in every respect as well as yesterday, and has had a quiet night.

Saturday, March 5th.

Last night he complained of some heat, but in a very moderate degree. Yesterday he had no stool. Has no pain at all in the groin, or in the abdomen, or in the small of the back. This morning his pulse is very regular, and not at all quick or full: the wound, for about an inch and three quarters, is perfectly open. The enlargement is not so considerable as yesterday: but the induration is much the same as it was: there is no serous or lymphatic discharge from the wound. Till that morning part of the original dressings stuck to the bottom of the wound: a proof that the wound now begins to digest at its interior and inferior parts.

Sunday Morning, March 6th.

He has had a very good night. To day he took a dose of Infus. Sen. cum Tinct. Sen. & Tart. Solubilis, on account of his being somewhat costive. The wound looks well; and discharges moderately. The Testicle is still very hard, and enlarged to twice its natural size: It appears very tender upon being slightly touched: but there is not much redness, or discolouration on the integuments.

Monday Morning, March 7th.

The physic which was taken yesterday operated four or five times in a proper manner. He eat some boiled chicken to day for dinner with a good appetite. He has had a very good night; his pulse is soft and regular; the wound keeps open, and digests properly. The lateral parts or edges of the Tunica Vaginalis appear somewhat sloughy: The Testicle upon being touched gives some pain; but since yesterday it is decreased. There is no discolouration of the integuments; nor the least pain in the groin, abdomen, or loins.

Tuesday,

Tuesday, March 8th.

Every thing goes on perfectly well. He has had a good night. The tumor of the Testicle diminishes.

Wednesday Morning, March 9th.

He is free from complaints: the wound is quite clean, and the tumor of the Testicle is much diminished: but upon being handled it still feels tender and painful.

Thursday, March 10th.

Every thing as favourable as yesterday: the wound remains open, and the Testicle and Epididymis are still a good deal enlarged, and indurated: but the inflammation is quite removed, and the tendernefs is much diminished.

Friday, March 11th.

But little alteration since yesterday.

Saturday, March 12th.

To day he took a purge: the tendernefs is a good deal removed. From this time he continued to go on very well: but in order to reduce the tumor of the Testicle and Epididymis, I ap-

plied a plaister of soap and mercury to the part, and gave him occasionally some purges. In about a month from the day of the operation, the testicle and Epididymis were restored to their natural size, and the patient was quite well; to this time has had no return of his complaint.

N. B. As the Testicle and Epididymis are fixed to the internal and posterior surface of the Tunica Vaginalis Testis; there will be no risque of wounding either of them, if the anatomy of the part be properly and previously considered.

For an account of the symptoms and success, which have attended the operation by the Seton, I beg leave to refer the reader to Mr. Pott's ingenious work on this subject: and to Mr. Else's treatise on the Hydrocele of the Tunica Vaginalis Testis.

OF A SCHIRRHUS OF THE TESTICLE.

When a gland, of the conglobate, or conglomerate kind, has for some time been enlarged, and indurated; and such enlargement and induration are not attended with pain or inflammation,

tion; or a dusky livid-coloured complexion of the integuments; or a distention and contorted form of the veins; or with any, or at most with a small degree of inequality of surface; such a diseased state of the parts, from their freedom from discolouration, from their exemption from pain, from their equality of surface, from their peculiar hardness and stony resistance to the touch, is usually by surgeons denominated a schirrhous: but when a schirrhous tumor is accompanied with all, or most of these appearances, the disease is then termed a cancer. If the integuments be whole, the tumor is called an occult cancer: if the integuments be ruptured, the tumor is called an ulcerated cancer.

The words Schirrhous, Induration, and Hardness, are in fact synonymous terms, but derived from different languages.

However, it must be acknowledged, that although the preceding words signify the same thing; nevertheless I think, when they are indiscriminately applied, they do not sufficiently characterize the exact nature and make of a schirrhous swelling: nor do they satisfactorily enough explain the true difference betwixt this species of tumor; and such tumors, though per-

haps equally hard, as are found to be of a more innocent, and mild nature.

All parts of the body, as well such, which from their particular construction, by anatomists and surgeons are treated of under the head of glands, as well as those parts which, from their very different construction, and use, are by no means entitled to this definition, are observed to be liable in some constitutions, proceeding from internal causes, as well as from external injuries, to such attacks and changes as these are: and from dissections it may in many instances be fairly demonstrated, that enlarged, hard, and stubborn glandular tumors, are as essentially different from each other, as cartilage differs from bone; or as cartilage is found to differ from fat: for the very fat will sometimes change into a schirrhus. However, it must at the same time be observed, that every schirrhus has a stoney hardness; and in every respect is truly an induration: though every hardness, even of the longest duration, does not always terminate, or degenerate into a schirrhus, or cancer. Since then these kinds of tumors are sometimes found so essentially to differ from each other in their nature and texture, they are often known likewise in a similar degree to vary in their mildness

ness and malignity; and for these obvious reasons are more or less disposed to submit to, or to resist the efficacy and powers both of external and internal remedies.

Those parts of a gland which are already become confirmed schirrhi, by changing their original delicately-constructed substance into a cartilaginous or gristly consistence, are almost always found to remain unalterable: whilst an indurated gland, that is not truly schirrhus, or those neighbouring parts of a schirrhus tumor which do not partake of the cartilaginous consistence shall admit of being considerably relieved; and in so great a degree too, as sometimes to render the extirpation of a part unnecessary; by which means a painful and dangerous operation is avoided, and an useful member is preserved.

That this is a fact, may be proved in affections of the Epididymis, and sometimes of the Testicles themselves, attended with enlargement and induration: as well as in indurated tumors of the salivary, and of the lymphatic glands of the neck, groin, and axilla; as is well enough known to surgeons of observation and experience: and as a farther proof of the reasonableness of this doctrine, I take the opportunity of subjoining the histories of the following cases, which within these

these few years have fallen under my inspection and management.

C A S E I.

A gentleman of a healthy appearance, and about thirty years of age, applied to me, in the utmost distress of mind, on account of a considerable indurated and uniformly smooth tumor of one of the Testicles ; with which he had been troubled for many months. He informed me, that he was a married man, and had been so for the space of a year ; and that he could not in the least account for the cause of his complaint. There was no discolouration of the Scrotum ; nor had he ever experienced any more than a small degree of pain in the part, and that at uncertain intervals. He told me, he totally despaired of any relief, but from the extirpation of the part ; which operation had been strongly recommended to him by an experienced surgeon of his acquaintance ; under whose care he had for many weeks been ; during this time, the patient had freely used mercurial frictions to the affected part ; and had at proper intervals taken several purges ; but without effect.

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However, I afforded the patient very great consolation, by telling him, that notwithstanding to appearance the case was unfavourable, yet I did not consider it as hopeless ; and that if at last an operation should be found expedient, it might probably with as great propriety be done some time hence, as at present ; and, with an equal probability of success too ; and that in the interim he might possibly be so far relieved as to render the extirpation of the part unnecessary.

From this time he desired to commit himself to my care. I began with giving him some mercurial purges ; after he had taken two or three doses of this physic, I put him into a course of the *Extractum Cicutæ*, beginning with small quantities of this medicine, and gradually increasing it.

With the *Cicuta* I joined the *Decoctum Corticis* ; at the same time I ordered the tumor to be twice a day fomented with a strong decoction of the leaves of the *Cicuta* boiled in water ; and afterwards to be covered with a cataplasm of the same leaves mixed with the decoction, and softened with oil.

For near four months this method was pursued : at the end of this time, the tumor of the Testicle was removed ; and now there remained

mained only a small degree of induration and enlargement of the Epididymis. These remains were finally perfectly dispersed, by wearing a plaister composed of mercury, soap, and gum Ammoniacum. Since then, this gentleman has had no return of his complaint, and he now enjoys a good state of health. Several years are elapsed since this cure was completed.

C A S E II.

About three years since, a young gentleman, not quite twenty years old, applied for my opinion relative to a disorder in one of his Testicles, with which he had been for a great while afflicted, as he informed me; and that after having for a considerable time followed the directions of a surgeon of eminence without any effect, he was in consultation advised to part with the Testicle. With reluctance it seems he assented to the proposition; but the day was appointed for the operation; when the hour was arrived, and every thing ready for the purpose; the young gentleman on a sudden was so intimidated, that he retracted his former

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mer resolution, and would not submit. Soon after this, in great distress of mind, he and his father paid me a visit; and on this occasion they consulted me.

Not as yet having been informed of what had happened, or with whom he had advised, I gave him some hopes of saving the Testicle. From this time he desired, under my directions, to submit himself to the care of the family surgeon. Upon examining the diseased Testicle, it appeared very little larger than the other; and he said he had never had much pain in the part; there was no discolouration on the skin; the Scrotum was smooth and uniform; but upon carefully feeling the Testicle, it appeared a little irregular in its make. I began with giving the young gentleman a mercurial purge, which at proper intervals was two or three times repeated: after he had thus been sufficiently purged, it was agreed to put him into a course of *Extractum Cicutæ*, and the *Decoctum Corticis*, together with a fomentation and cataplasm of the *Cicuta* used to the part. From this time the young gentleman gradually recovered; and in a few months got quite well.

O B S E R V A T I O N.

These disorders were such, I think, as may with propriety be rather comprised under the head of induration, than schirrhus; for had the diseased Testicles been confirmed schirrhous, it is probable that all efforts to remove these tumors, would have been unsuccessful: and that the malignity, and stubbornness of the disease would have proved so great, as probably to have ended unfavourably; and, sooner or later, might have required such treatment as was at first incautiously advised.

O F A S C H I R R H U S A N D C A N C E R
O F T H E T E S T I S.

When an enlargement and induration of the Testicle is degenerated into a Schirrhus, and the Testis is arrived at so considerable a size as, on account of its bulkiness and weight, to become in a great degree troublesome and inconvenient to the patient: notwithstanding, in this stage of the disease, there shall be but little pain; yet

yet there being no probability left of lessening the tumor, either by local applications or internal remedies ; but on the contrary it is found to increase ; for this reason it is, in some instances, found expedient to advise the extirpation of the part, as the only relief that can be given under this unfavourable circumstance.

When the tumor is neglected till it becomes cancerous, it still more immediately demands a compliance with this measure ; because of the great pain with which the disease is sometimes attended ; and if the Scrotum and its subjacent parts be burst and ulcerated, the severity of the symptoms will be aggravated, with the additional inconvenience of a foetid ichorous discharge ; and, sometimes too, this discharge will be succeeded by sudden and considerable evacuations of blood from one or more vessels : by which means the strength of the miserably afflicted patient becomes greatly exhausted, and his depraved constitution is in a short time rendered so infirm as to threaten a speedy dissolution, unless the whole of the diseased parts be removed.

Previous to a determination upon the operation of castration : it is, by all experienced and
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judicious authors in surgery, recommended to the operator to be particularly circumspect, relative to the state of the spermatic chord; and at the same time it is advised, that, should the vessels composing the spermatic rope be discovered to be enlarged and indurated, the operation should be objected to, unless the disease of the chord terminates on the outside of the Abdomen, below the perforation of the tendinous expansion of the *Musculus Obliquus Descendens*.

Besides this necessary and judicious precaution, there are others, I think, of at least equal importance, that require the deliberate consideration of the surgeon, previous to a procedure to castration: I mean the state of the inguinal glands, and the state of all those other glandular parts, which, from their situation, will admit of examination, as well as the condition of the internal Viscera, so far as we may be supposed to have it in our power to judge of them, by externally searching the Abdomen; or by properly attending to such hectic symptoms as diseased Viscera of the Abdomen and Thorax are known to be capable of producing; since no surgical operation of this kind can reasonably be supposed to do more than to remove
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such general bodily complaints as are derived from a local cause : for whatever success may with reason be expected, in a constitutional illness, must be sought for from good air, and from alteratives of the dietetic and medicinal tribe, or from issues ; and not from the knife, the caustic, or the ligature only.

But, should there be no apparent reason for objecting to the extirpation of the Testicle, the operation may be performed in the following manner, and sometimes with a good prospect of success.

OF THE OPERATION OF CASTRATION.

Place your patient in a supine posture upon a table of a convenient height, covered with a blanket.

Support his shoulders, neck, and head, with a pillow, so that he may lie in an easy situation : by proper assistants, let his legs and thighs be secured, and separated from each other, with the knees a little bent : at the same time observe that an assistant gently presses upon the upper and anterior part of the Thorax ; so that the patient, in

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this situation, may steadily be confined during the operation.

These precautions being properly attended to, resolutely begin your incision an inch at least above the upper extent of the tumor; making your wound, at once, quite through the integuments to the lower extent of the Tumor, and in a semi-elliptic form: proceed then to make a second wound in an opposite direction, so that this wound may correspond both in size and shape with the first.

With expedition go on then to dissect the Testicle, on each side, from the Scrotum,

Afterwards divide the spermatic chord near the Abdomen; and tie up the bleeding spermatic artery, if necessary, with a small needle and thread passed round the vessel. When you have secured the spermatic artery, search for the artery of the Septum Scroti, and tie that likewise, if it appears of consequence enough to require tying. The arteries of every other part, that are large enough to bleed freely, must be treated in the same manner. When the hæmorrhage is stopped, dress the wound superficially with dry lint: then, over the lint, apply a soft pledgit of tow, spread with an emollient ointment. The dressings may be secured

cured with a single T bandage, or not, as may be thought convenient.

Put your patient to bed; and administer an opiate: which ought occasionally to be repeated. Pay a proper regard to the symptomatic fever, when it comes on; and, from the time of putting your patient to bed, let him be kept perfectly quiet.

On the third or fourth day after the operation, dress the wound with yellow Basilicon, or Linimentum Arcæi, spread upon pledgits of lint: before the pledgits are applied, dip them in warm fallad or linseed oil. Let this mode of dressing be repeated till the first dressings come off; and as long afterwards as you find it necessary to the promotion of digestion.

If, at the end of a week or ten days, or later, your patient complains of a languor, and the wound should not produce good matter, but on the contrary a bloody and corrosive sanies succeeds, foment the wound once or twice a day with an antiseptic fomentation, mixed with camphorated spirits of wine, or brandy; and liberally supply the patient with the Cortex Peruvianus in substance, or in whatever shape you may find most agreeable to the stomach. The Bark-draughts may be advantageously

geously mixed with the Serpentary, and these draughts may be acidulated with the Spiritus Vitrioli Tenuis ; for these additions, under some circumstances, are found to add much to the efficacy of the Bark. Continue this course as long as you may find it necessary.

In the directions already laid down, for the extirpation of the Testicle, I have supposed the integuments to be sound ; but, should they prove otherwise, the whole diseased parts must infallibly be removed, without paying a particular regard to the shape, size, or extent of the wound. Observe to keep your patient's body properly open, if disposed to costiveness : if otherwise disposed, pay a regard to the diarrhœa, by keeping him upon a proper diet ; and by the farther assistance of such medicines as are best adapted to the purpose of gradually restraining such evacuation.

At the times of dressing the wounds, use no violence ; but permit the dressings to continue till they spontaneously drop off, or till they admit of being very easily removed.